



Schweizerische Hypertonie-Gesellschaft  
Société Suisse d'Hypertension  
Società Svizzera d'Ipertensione  
Swiss Society of Hypertension

### ***Hot from the hypertensive press***

*Short analysis of clinical studies that may change our practices in the field of hypertension*  
01/2023

### **How is blood pressure related to the risk of dementia and which factors potentially modify this association?**

*Association of Systolic Blood Pressure with Dementia Risk and the Role of Age, U-Shaped Associations and Mortality*

Arterial hypertension is the most important risk factor for cerebral small vessel disease (SVD). Upon cerebral MR-imaging, SVD is characterized by small subcortical ischemic brain infarcts as well as cerebral microbleeds. Clinically, SVD is the most frequent underlying condition of vascular cognitive impairment and dementia. Therefore, detailed knowledge of the relation of blood pressure and cognitive decline is of great clinical relevance. The present study addressed the question how blood pressure is related to the risk of dementia and which factors potentially modify this association.

The authors included individual participant data from overall seven prospective, observational, population-based cohort studies evaluating incident dementia in cognitively unimpaired subjects. Blood pressure was assessed at baseline and subjects were followed and evaluated for incident dementia and mortality.

Overall, more than 17'000 subjects were included (60% female, mean age 74.5 years). Follow-up periods were 10 or more years in most studies (up to 25 years).

Overall, approximately 16% of subjects developed dementia during follow-up, with a median time to diagnosis of 7.3 years. Approximately 46% of subjects died during follow-up.

Interestingly, overall for all age groups, the authors observed that the risk of dementia was lower for individuals with higher baseline blood pressure. Subgroup analyses by age (overlapping 10-year age groups) revealed a U-shaped association in older age groups, with a systolic blood pressure of approximately 160 to 170 mm Hg being associated with the lowest dementia risk in those over 75 years. Looking at mortality, the authors found a U-shaped association and combining dementia and mortality also showed a U-shaped association of blood pressure over all age groups, with lowest risk points of approximately 135 mm Hg in those aged 60 to 70 years, increasing to approximately 160 to 165 mm Hg in those older than 70 years. The findings for systolic blood pressure were more pronounced than for diastolic blood pressure.

Taken together, the study implicates that there may be age-related differences of the effect of blood pressure on cognitive decline, with a potentially lower risk in older subjects with higher blood pressure. The observed U-shaped association were especially found for older subjects and based on their findings the authors conclude that blood pressure management should take age and life expectancy into consideration. The findings may be of relevance for clinical practice as well as research studies and trials on the important topic of blood pressure and dementia.



### **Reference**

van Dalen JW, Brayne C, Crane PK, Fratiglioni L, Larson EB, Lobo A, Lobo E, Marcum ZA, Moll van Charante EP, Qiu C, Riedel-Heller SG, Röhr S, Rydén L, Skoog I, van Gool WA, Richard E. Association of Systolic Blood Pressure With Dementia Risk and the Role of Age, U-Shaped Associations, and Mortality. *JAMA Intern Med.* 2022 Feb 1;182(2):142-152

Prof. Dr. med. Nils Peters, Swiss Society of Hypertension

31.012023